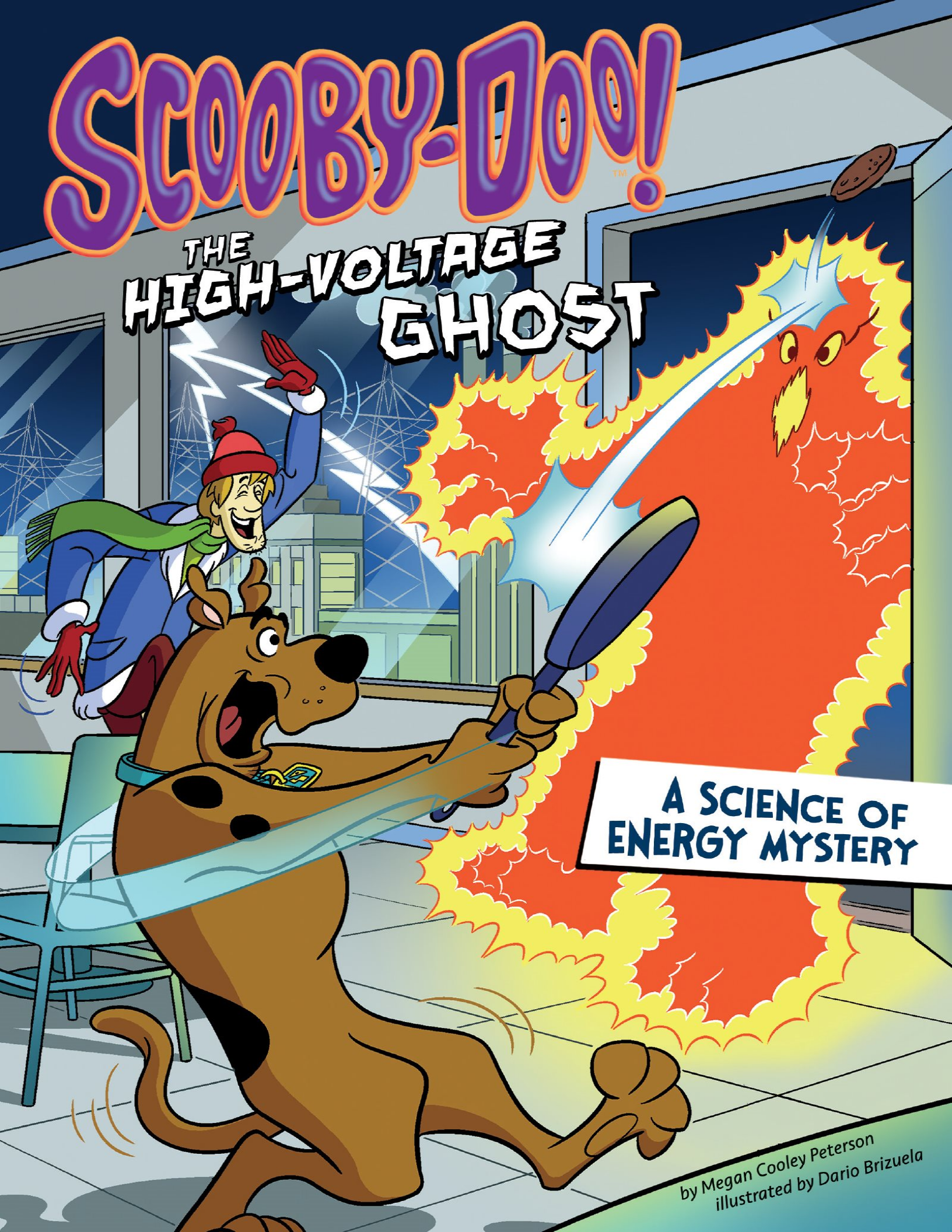
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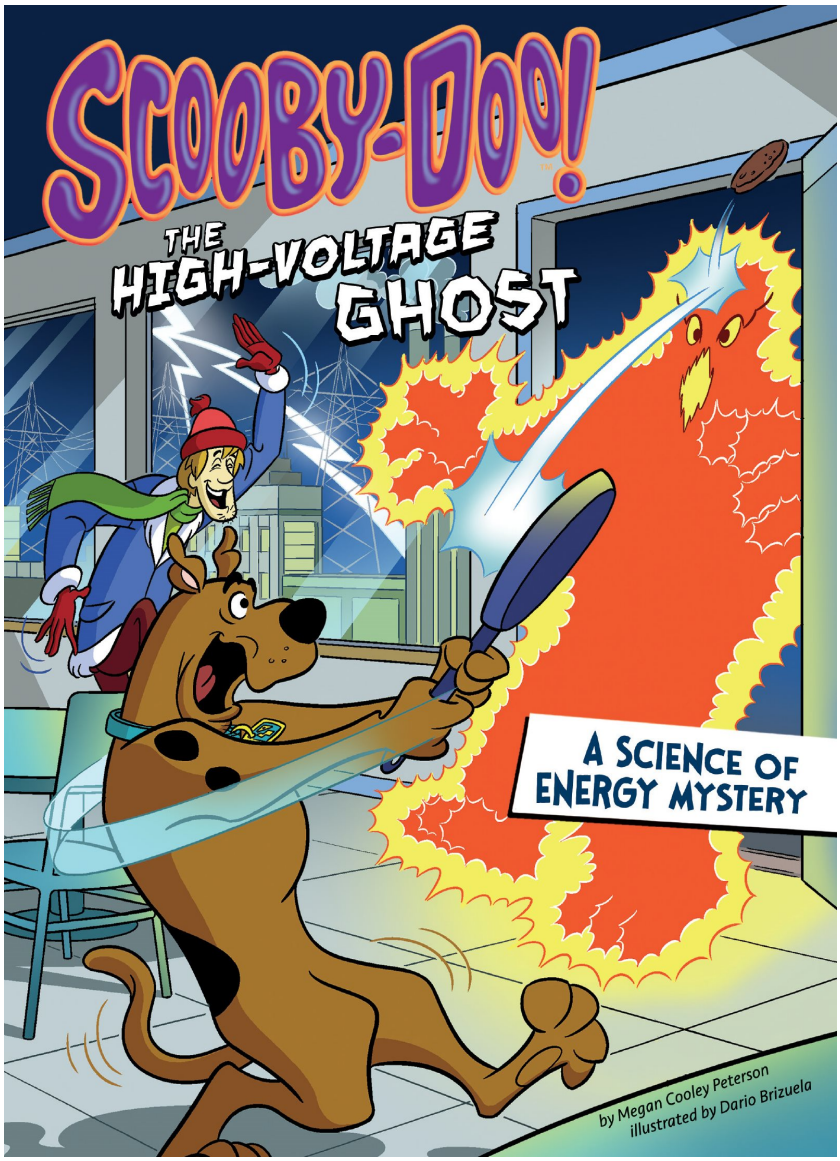
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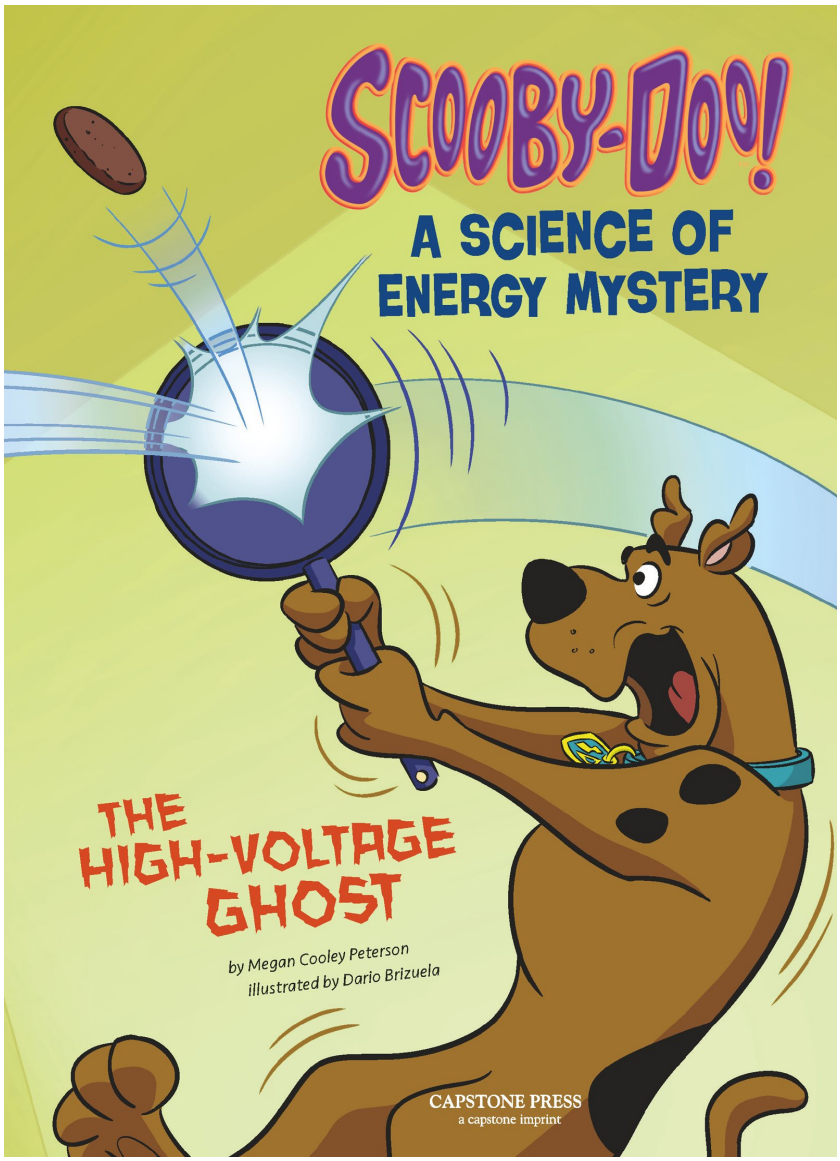
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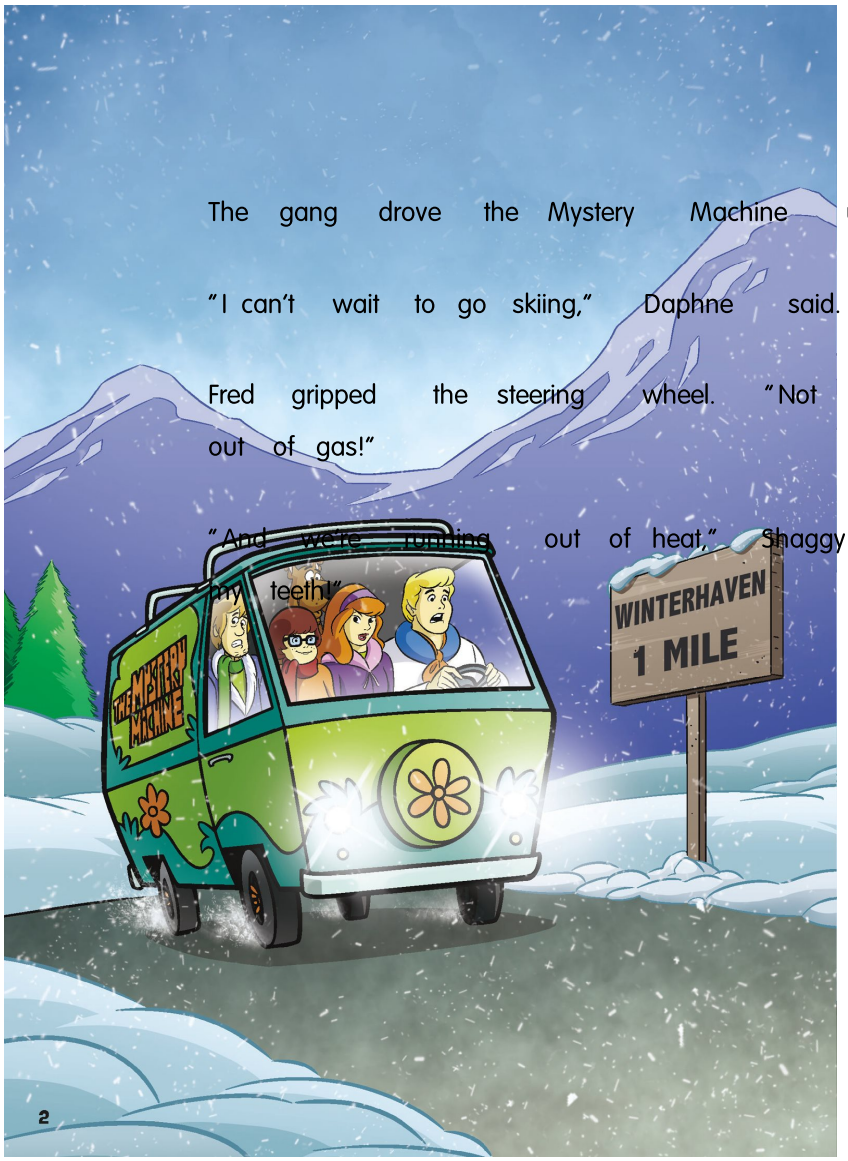
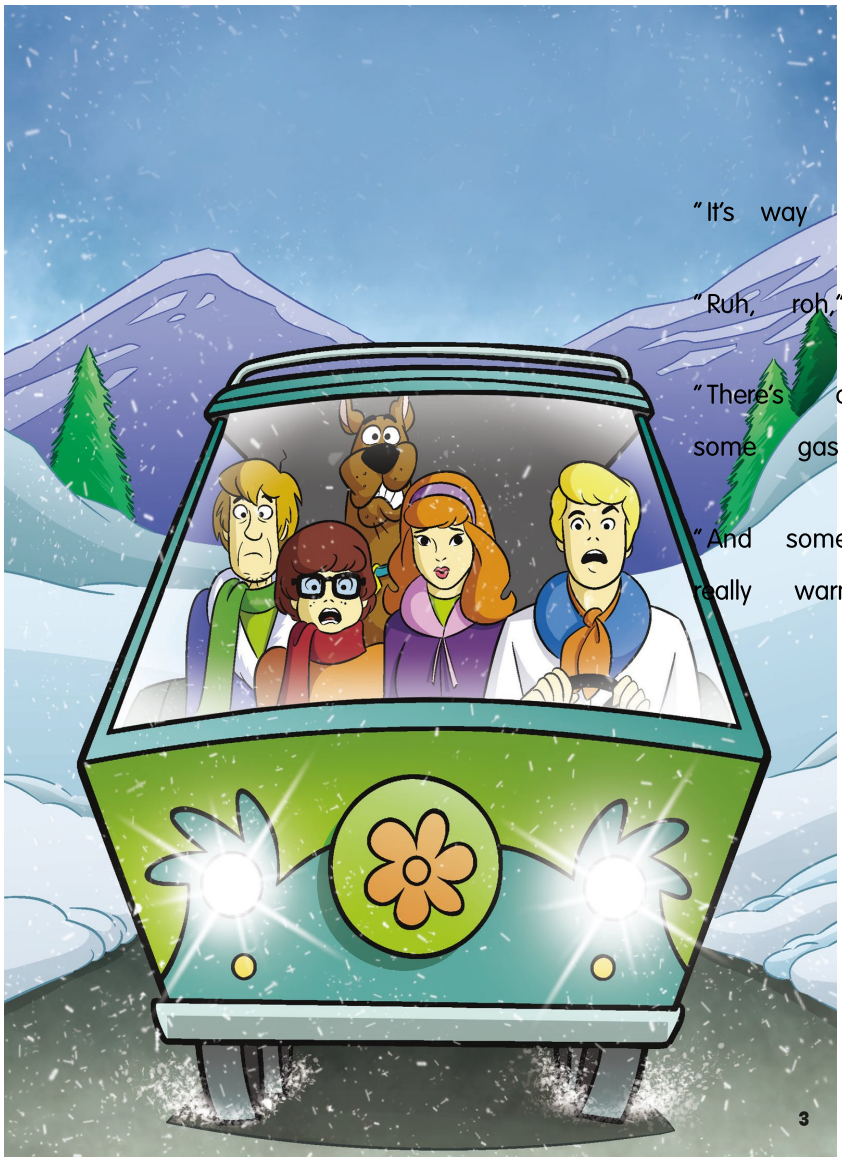


The gang drove the Mystery Machine up an icy mountain road.

"I can't wait to go skiing," Daphne said. "How close is your unc

Fred gripped the steering wheel. "Not close enough," he said. out of gas!"

"And we're running out of heat," Shaggy said, shivering. "I can' my teeth!"



"It's way below zero," Daphne sai

"Ruh, roh," Scooby whimpered.

"There's a town a mile up the roac
some gas there."

"And something to eat," Shaggy
really warm me up."

"This place looks like a ghost town," said Daphne.

"It's probably not haunted," Velma said. "The electricity must just

"Either way, the gas station is closed," Fred added. "And our tank

"Man, my stomach is as empty as our gas tank," Shaggy complaine

"Rine roo," said Scooby.

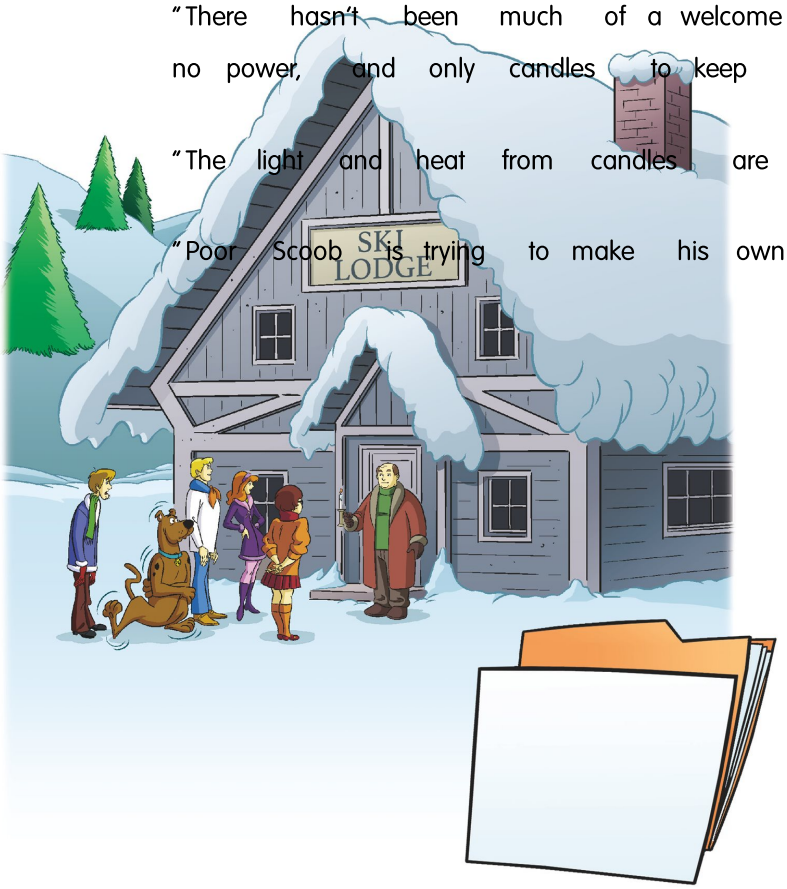
"I saw a ski lodge in town. Let's check it out," Daphne suggested.

"I'm Mayor Dudley," the man at the lodge said. "Welcome to

"There hasn't been much of a welcome so far," Shaggy whined no power, and only candles to keep us warm."

"The light and heat from candles are forms of energy," Velma

"Poor Scoob is trying to make his own heat," joked Shaggy.

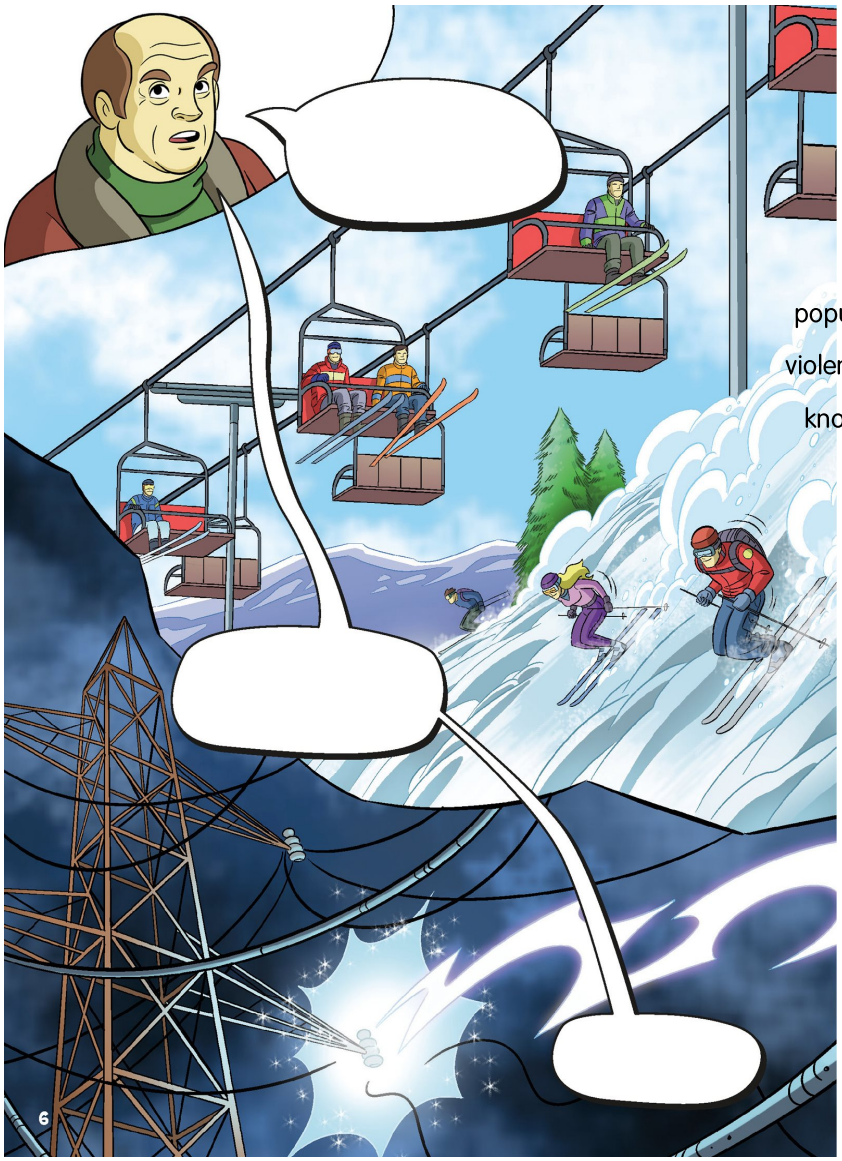


"That's right," Daphne said. "Everything in the universe is made atoms and molecules. When they move, they have heat energy. The faster the molecules move around, the warmer an object is."

"Rarm!" Scooby said, jumping up and down.

"Most towns use electricity for their energy. What happened to the electricity in Winterhaven, Mayor?" Fred asked.

"It's all because of the 10,000- Volt Ghost," the mayor said. "Let me tell you kids the story."



Winterhaven was once popular ski resort town. Dur violent storm, trees blew ove knocked down power lines. town lost power.

Mr. Collins, the power plant owner, sent a worker to fix the line. The worker climbed the

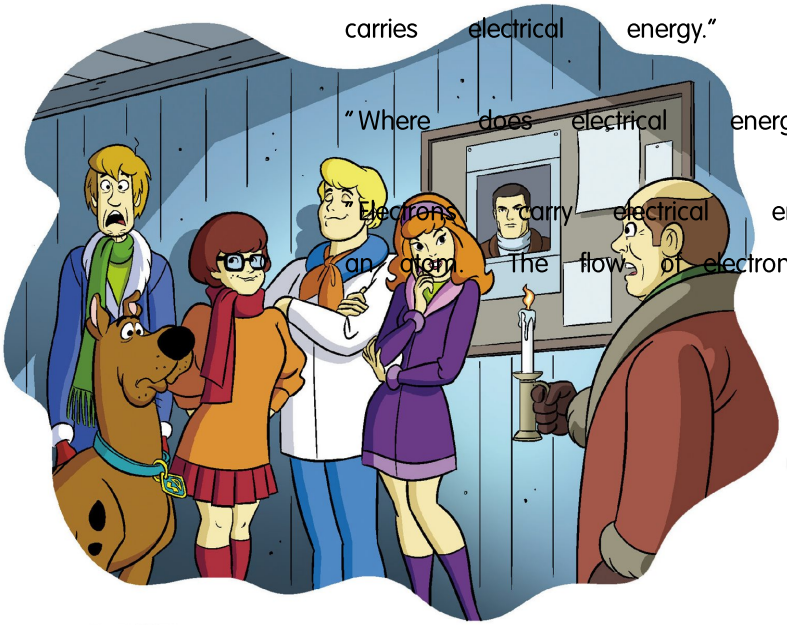
power pole by himself.

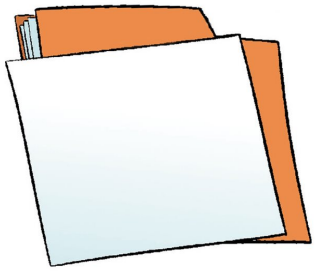
"Zoinks!" cried Shaggy. "Lightning sure is spooky."

"It's not spooky, it's science. But it can be dangerous," carries electrical energy."

"Where does electrical energy come from?" Shaggy

Electrons carry electrical energy," replied Fred. "An
an atom. The flow of electrons creates an electric cu





FACT FILE

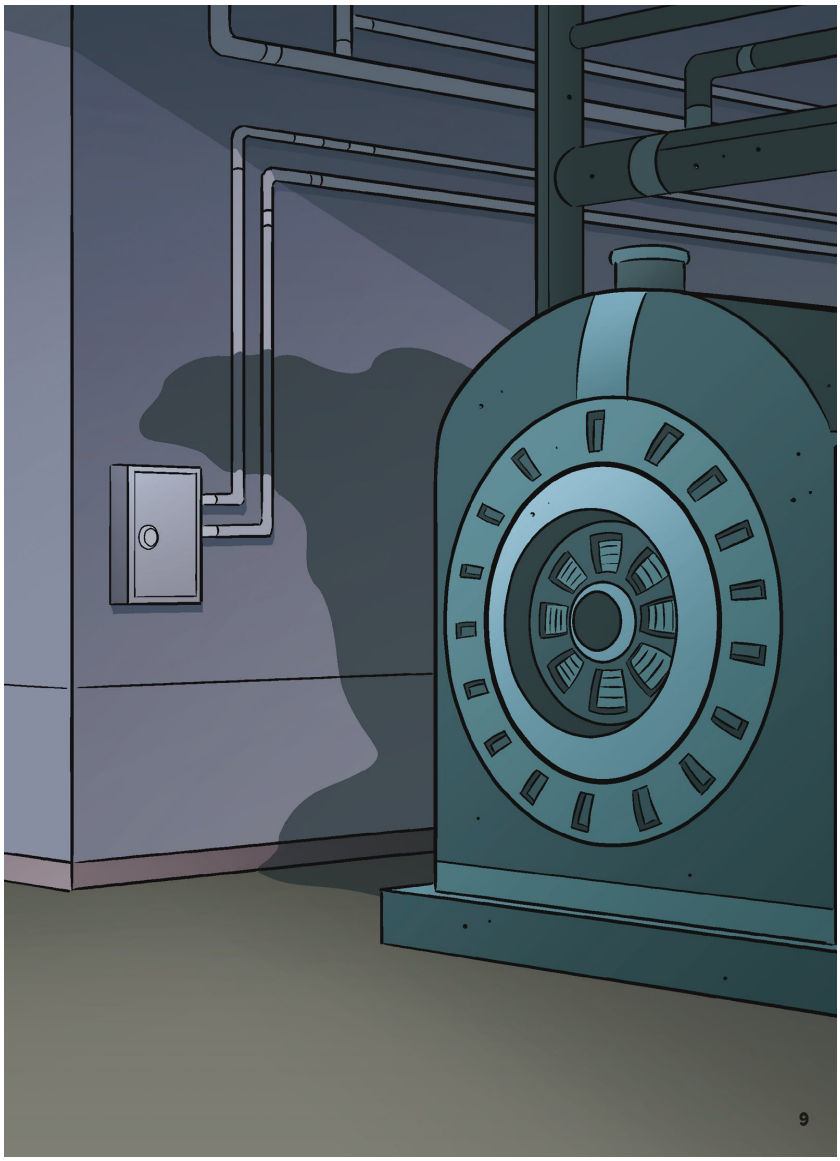
Benjamin Franklin was an inventor and a scientist. He experimented with electricity in the 1700s. He also invented the lightning rod to keep people safe. Lightning strikes the tall, metal rod on top of a building instead of the building or people.

"The worker mu
said. "Did anyon

The mayor shive
ghost," he said.
everyone away."

"Maybe we can
offered. "Let's i

"Like, how does a power plant
"Power plants change the chemi
electricity," Velma explained. "
"Power lines carry the electricity
added. "When you turn on a lig
And a toaster changes electricity
Shaggy's stomach rumbled. "M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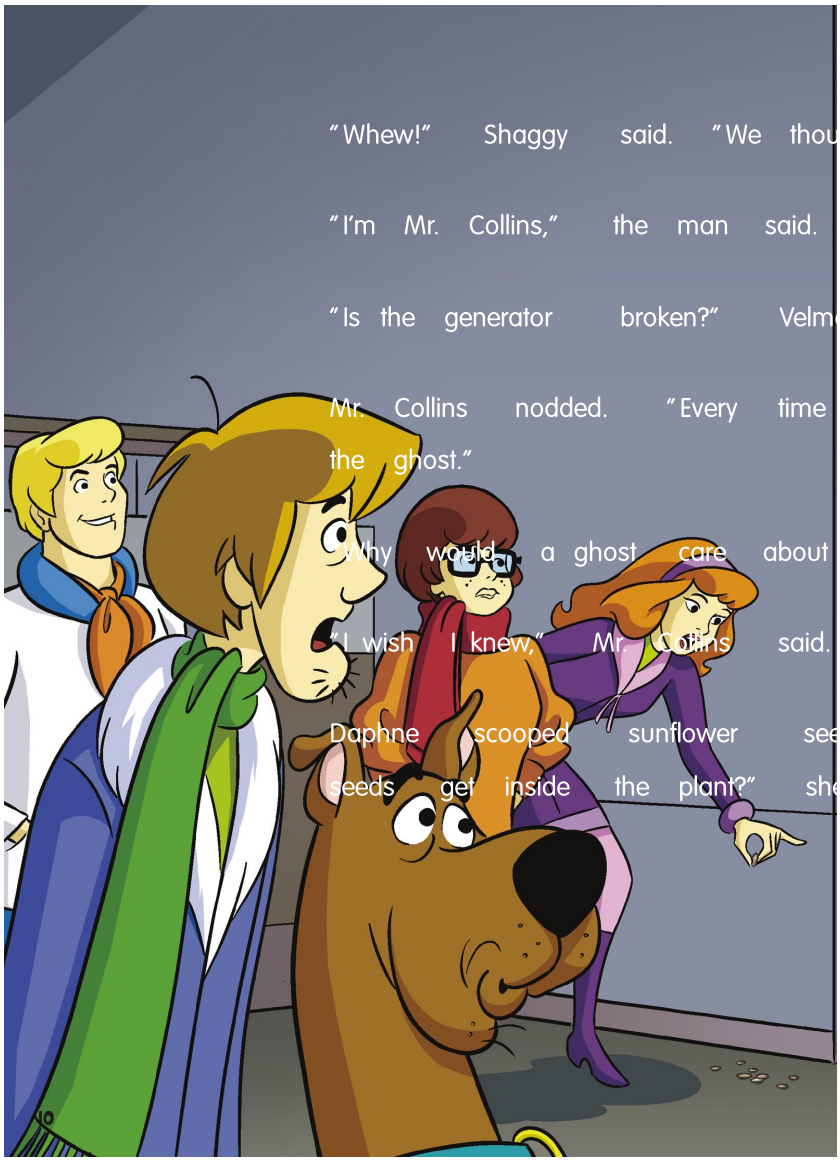
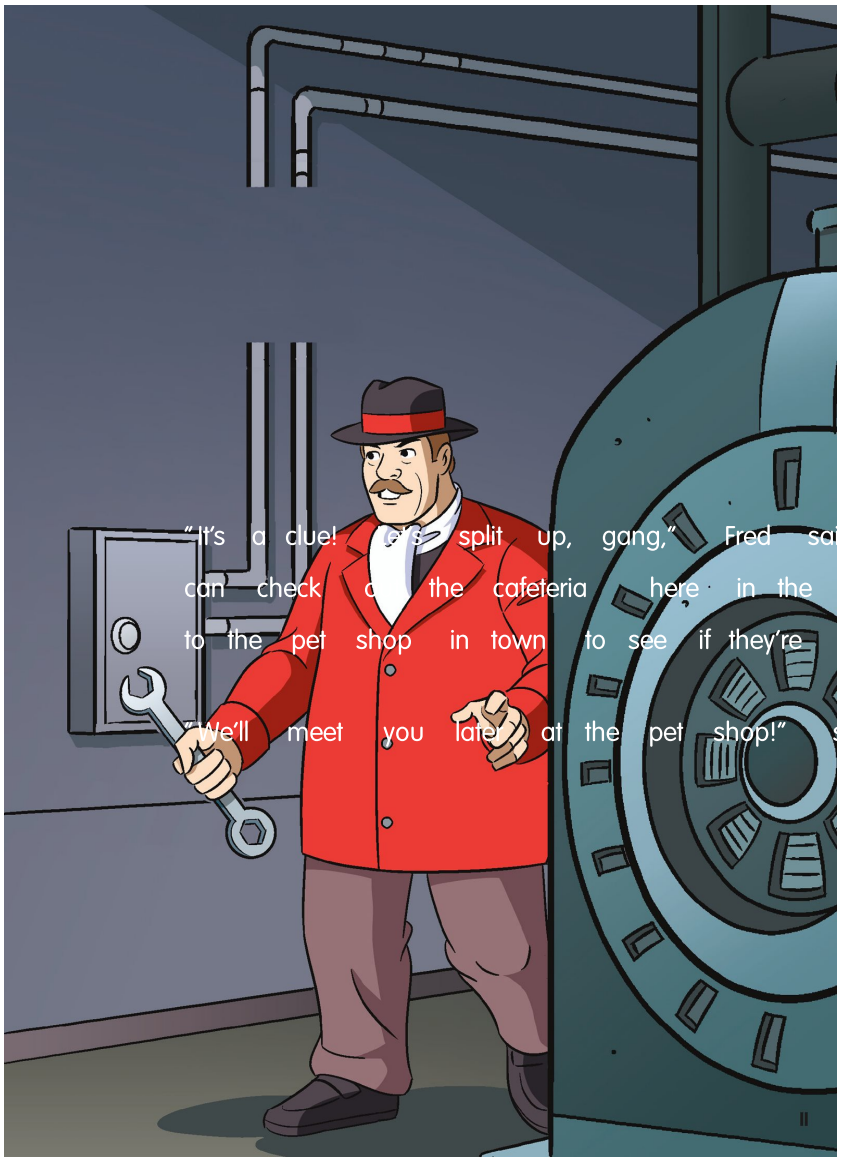

"Whew!" Shaggy said. "We thou
"I'm Mr. Collins," the man said.
"Is the generator broken?" Velm
Mr. Collins nodded. "Every time
the ghost."
Why would a ghost care about
"I wish I knew," Mr. Collins said.
Daphne scooped sunflower see
seeds get inside the plant?" she


"It's a clue! Let's split up, gang," Fred sa
can check at the cafeteria here in the
to the pet shop in town to see if they're
We'll meet you later at the pet shop!"

"Man, these frozen hamburger patties really bum me out," Shaggy
"If we had some electricity, I could cook us up a feast!"

Scooby licked his lips. "Rum!" he said.

"Quick, Scoob! Think fast," Shaggy said, winding up.

"Shaggy, did you know your arm holds potential energy?" Velma asl

"So, like, what happens when I throw this meat- sicle?" Shaggy asked

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"Did you hear that, Scoob?" Shaggy asked. hamburger's bell!"

"The sound of the frying pan hitting the fro of energy," Velma said.

"Renergy?" Scooby asked.

"Yes, Scooby. When atoms and molecules in the air vibrate, they make a sound. Sound energy travels through the air in waves," Velma said.

"Zoinks! The meat- sicle hit the ghost!" Shaggy shoute

"And it doesn't look very happy," Velma said. "Let's

FACT FILE

Sound energy is invisible, but you can feel it. Hold an empty plastic bottle against a speaker. Turn up the volume. You can feel the sound moving through the bottle!

"Those seeds definitely came from this pet shop," Daphne said.

"And they lead into that room," Fred said.

Velma pointed to the couch. "It looks like someone, or something, is living here."

"Scoob, don't eat all the evidence," said Shaggy. "It might be an important clue."

Fred walked toward the door. "Only one way to find out."

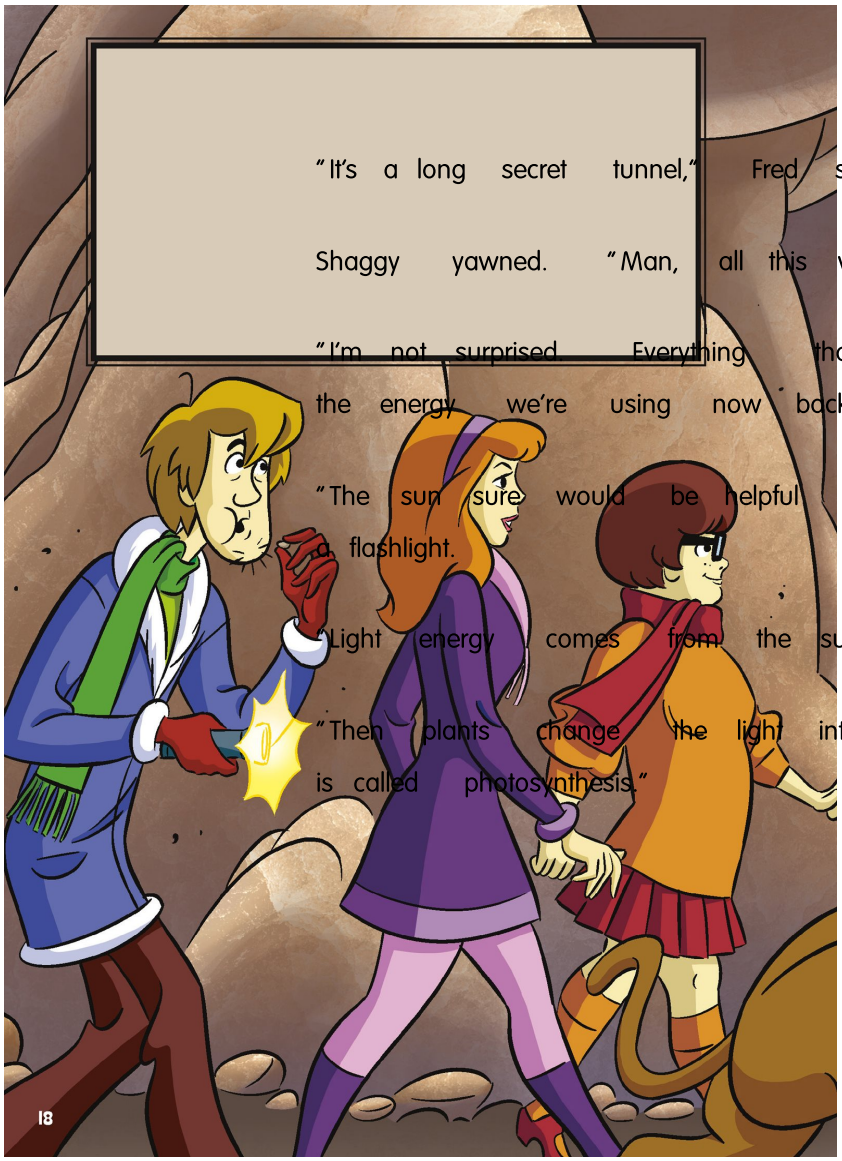
"Here we go again," Shaggy muttered.

"This snowsuit's cold and damp— someone

"Something strange is going on in this town."

"Look!" Fred exclaimed. "Scooby found a secr

"Let's see where it leads," Daphne said.



"It's a long secret tunnel," Fred said. "I wonder where it

Shaggy yawned. "Man, all this walking is making me sle

"I'm not surprised. Everything that moves uses energy,"

the energy we're using now back to the sun."

"The sun sure would be helpful right about now!" Shaggy

a flashlight.

"Light energy comes from the sun. Plants absorb the ligh

"Then plants change the light into chemical energy," add

is called photosynthesis."

"Like, I'm not a plant," Shaggy said, chomping on the seeds.
"But you're eating one," Velma said. "Every time you eat, y
part of an energy chain."
"All energy flows through an energy chain," Daphne explain
bodies take in chemical energy from the food we eat. This
stored as fat and other substances."
"When you move, your muscles turn the stored energy into
energy," Fred said.
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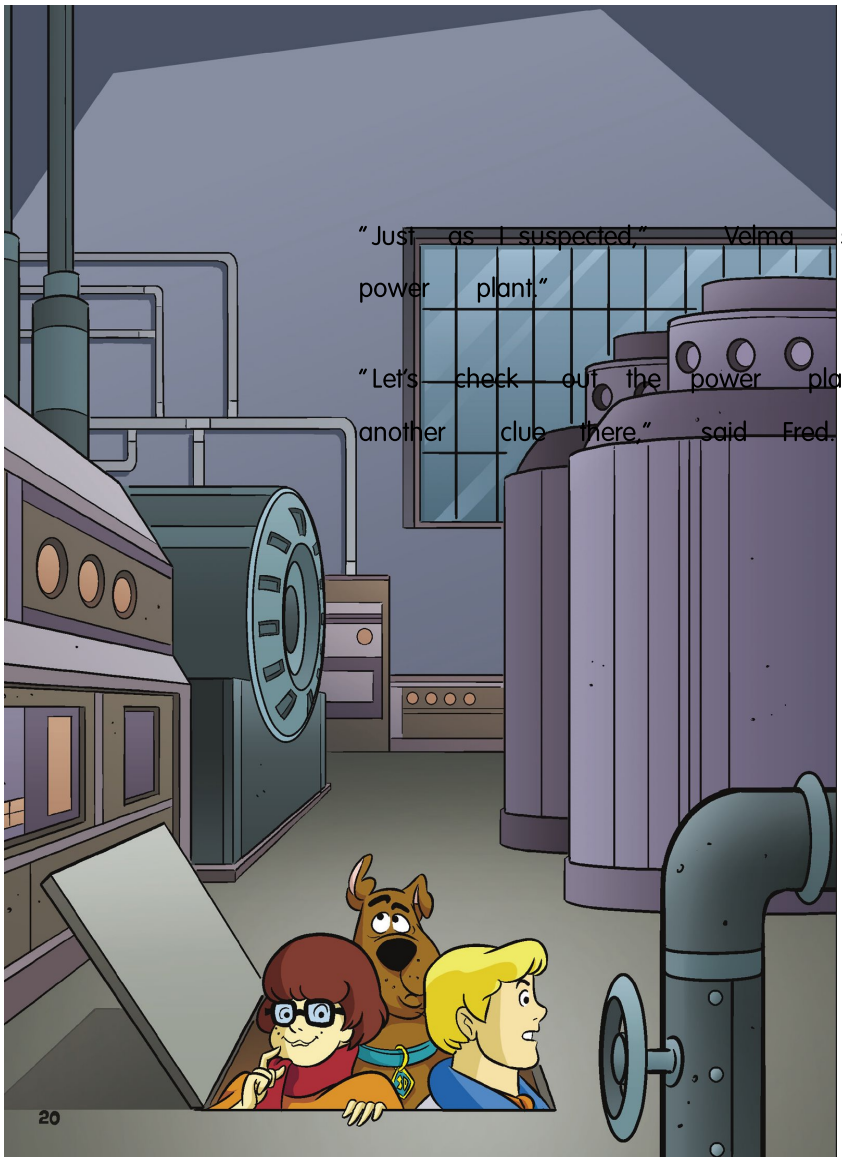


"Just as I suspected," Velma said. "This tunnel leads t power plant."

"Let's check out the power plant worker's house. Mayb another clue there," said Fred.

"This place is a mess," Shaggy said.
my bedroom!"

"Winterhaven might still be running
said Velma.

"Like, what?" asked Shaggy.

"My family uses solar power to gene
panels change the sun's light energy

"Solar energy is also better for the
fuels at the power plant causes poll

"I found something, gang," said Fre
Winterhaven. It was sent to the pow

"Let's go to the courthouse and follo

"Hey, Scooby," Shaggy said. "Why was the math book so sad?"

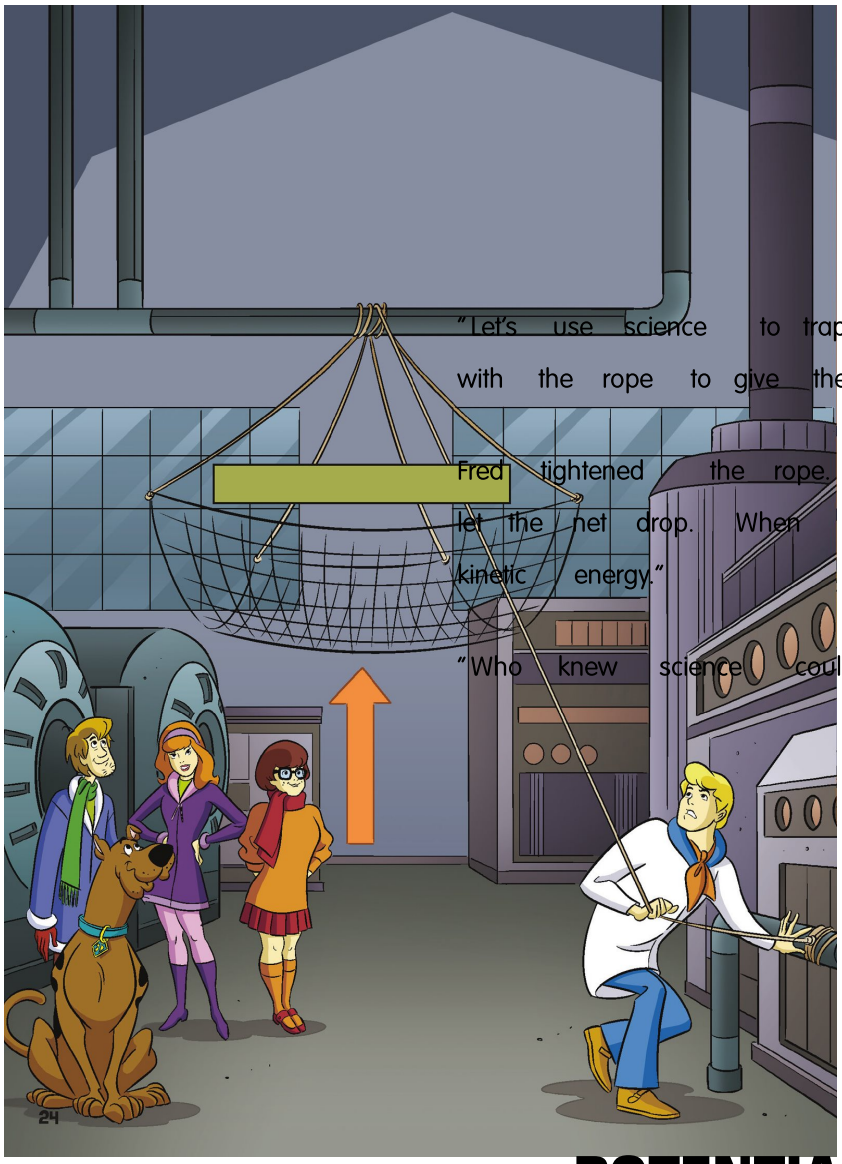
"I row," answered Scooby.

"Because it had so many problems!" said Shaggy.

"Enough with the silly jokes," Velma said. "I fo
records book says Mayor Dudley bought the

"But what does it all mean?" Daphne asked.

"I'm not quite sure yet, but I'll bet that ghost h
Velma said.



"Let's use science to trap this ghost," Daphne sc
with the rope to give the net potential energy."

Fred tightened the rope. "We'll wait for the ghost
let the net drop. When the net falls, its potential
kinetic energy."

"Who knew science could come in so handy?"

POTENTIAL ENERGY

KINETIC
ENERGY

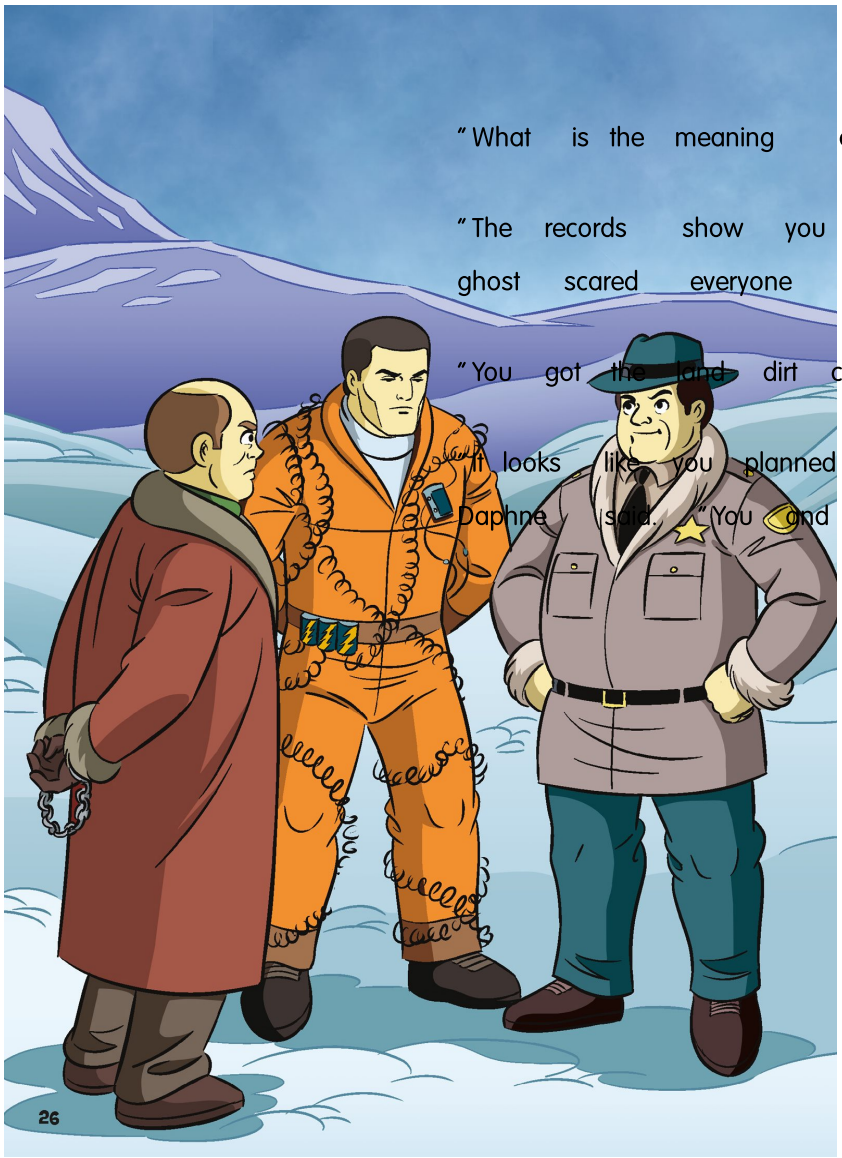
"Now it's time to see who this ghost really is," Dap ghost's mask.

"Just as I suspected," Velma said. "It's the power who kept breaking the generator."

"How'd you guess?" Daphne asked.

"Let's find the sheriff," Velma said. "I'll explain ever

"Clever disguise," added Fred. "The worker rigged batteries. A battery holds chemical energy, which The batteries lit up his glowing suit. Not a 10,000-



"What is the meaning of this?" Mayor Dudley c

"The records show you bought a bunch of land ghost scared everyone away," Velma explained.

"You got the land dirt cheap," added Fred.

"It looks like you planned to sell it for a huge p Daphne said. "You and your worker made up

"And we would've gotten away with it if it hadn't been for meddling kids!" said the mayor.

"Now that we have that settled, let's get the power back o go fry up those meat- sicles," Shaggy said. "I'm starving!"

"Re roo!" said Scooby.

GLOSSARY

atom (AT-uhm)— the smallest particle of an elem

chemical energy (KE-muh-kuhl EN-uhr-jee)— the that is released through a chemical reaction

electricity (i-lek-TRIS-i-tee)— the movement of ele to make light and heat or to make machines wo

electron (i-LEK-tron)— a tiny particle in an atom t the nucleus

energy (EN-uhr-jee)— the ability to do work, such giving heat or light

fossil fuels (FAH-suhl FYOOLZ)— natural fuels forr plants and animals; coal, oil, and natural gas ar

generator (JEN-uh-ray-tur)— a machine that proc turning a magnet inside a coil of wire

kinetic energy (ki-NET-ik EN-uhr-jee)— the energy

molecule (MOL- uh- kyool)— the atoms making up substance; H_2O is a molecule of water

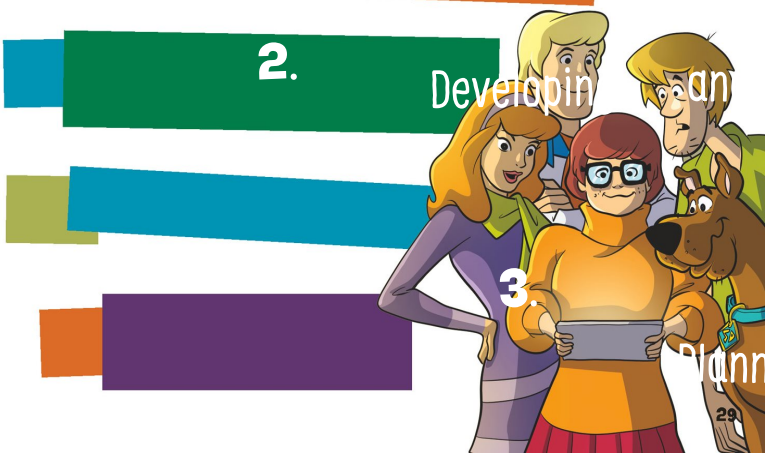
photosynthesis (foh- toh- SIN- thuh- siss)— the proc plants make their food

potential energy (puh- TEN- shuhl EN- uhr- jee)— e object, waiting to be released

solar power (SOH- luhr POW- uhr)— energy from t for heating and electricity.

vibrate (VYE- brate)— to move back and forth qui

SCIENCE AND ENGINEERING



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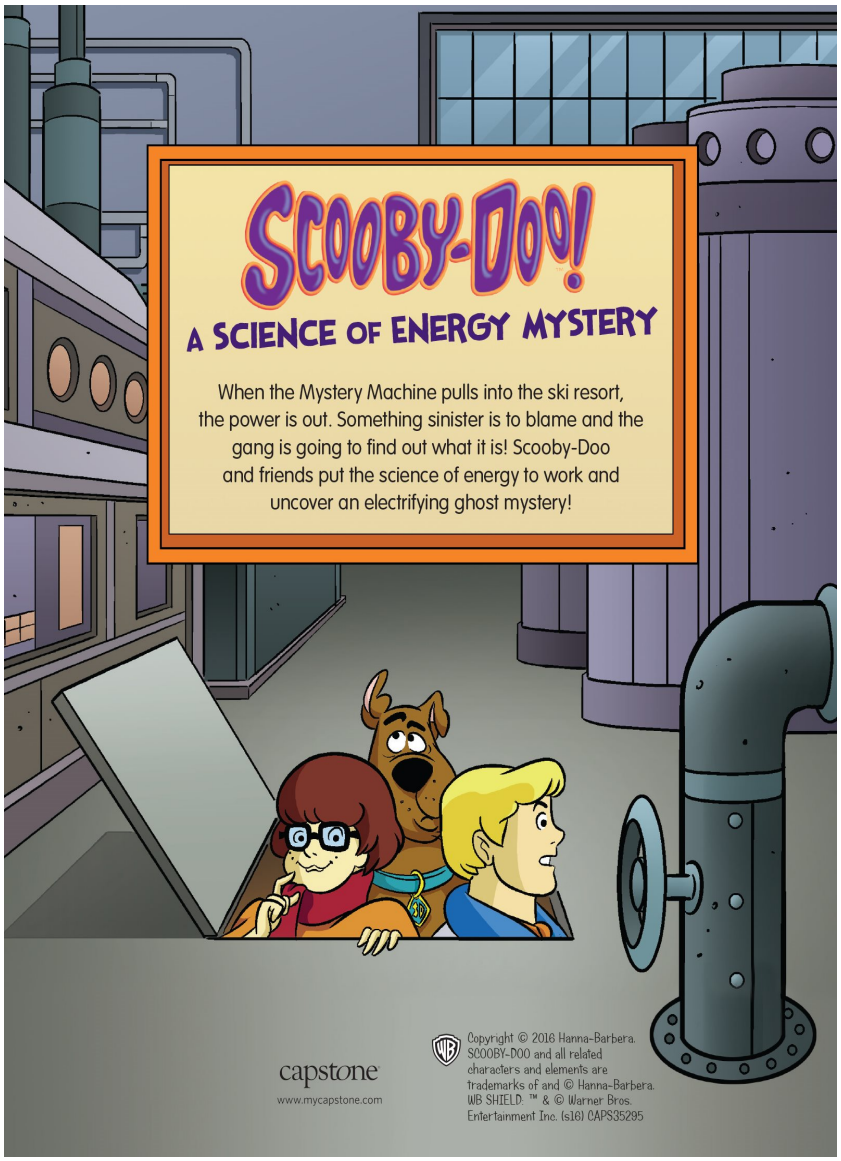
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